Renewable Energy & Engineering

Energy Mix and Electricity Supply Infrastructure

- Location: London
- Date: From 10/2/2025 To 14/2/2025
- Investment: $5950 (Excluding VAT)

LONDON ROYAL ACADEMY

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Course Introduction

This 5-day intensive course provides a comprehensive overview of modern electricity systems, encompassing the diverse sources of energy that contribute to the energy mix, the critical infrastructure that delivers power to consumers, and the challenges and opportunities facing the evolving energy landscape. Participants will gain a deep understanding of the technical, economic, and environmental factors that shape the future of electricity supply

Training Method

- Pre-assessment
- Live group instruction
- Use of real-world examples, case studies and exercises
- Interactive participation and discussion
- Power point presentation, LCD and flip chart
- Group activities and tests
- Each participant receives a binder containing a copy of the presentation
- slides and handouts
- Post-assessment

Course Objectives

Upon successful completion of this course, participants will be able to:

- Understand the fundamentals of electricity generation: Explore various power generation technologies, including conventional (fossil fuels, nuclear) and renewable (solar, wind, hydro, geothermal) sources.
- Analyze the components of the electricity grid: Examine the key components of the electricity grid, including generation, transmission, distribution, and end-use.
- Evaluate the challenges and opportunities of different energy sources: Analyze the technical, economic, and environmental implications of various energy sources in the context of a sustainable energy future.
- Understand the role of energy storage and grid modernization: Explore the critical role of energy storage technologies (batteries, pumped hydro) and smart grid technologies in enhancing grid reliability and flexibility.
- Analyze energy markets and policies: Understand the structure and operation of electricity markets, the role of government policies, and the impact of regulations on the energy sector.
- Develop critical thinking and problem-solving skills: Analyze complex energy challenges, evaluate alternative solutions, and make informed decisions.
- Communicate effectively: Effectively communicate technical information related to energy systems to diverse audiences.

Who Should Attend?

This course is designed for a wide range of professionals with an interest in the energy sector, including:

- Energy Professionals: Engineers, planners, analysts, and managers working in the power sector.
- Policymakers and Regulators: Government officials and regulators involved in energy policy and regulation.
- Researchers and Academics: Researchers, faculty, and students in energy-related fields.
- Business Professionals: Executives and professionals in industries impacted by energy policy and markets.
- Individuals interested in the energy transition and sustainable

Course Outline

Day 1: Fundamentals of Electricity Generation

- Morning:
  - Principles of Electricity Generation: Basic concepts of power generation, energy conversion, and power plant technologies.
  - Conventional Power Generation: Fossil fuels (coal, natural gas, oil), nuclear power.
  - Renewable Energy Sources: Solar, wind, hydro, geothermal, biomass.
- Afternoon:
  - Energy Resources and Reserves: Assessing the availability and sustainability of different energy sources.
  - Environmental Impacts of Power Generation: Air pollution, water pollution, greenhouse gas emissions.

Day 2: The Electricity Grid

- Morning:
  - Components of the Electricity Grid: Generation, transmission, distribution, and end-use.
  - Grid Operations: Load balancing, frequency control, voltage regulation.
  - Grid Reliability and Resilience: Ensuring the secure and reliable operation of the grid.
- Afternoon:
  - Smart Grid Technologies: Advanced metering infrastructure (AMI), demand-side management, distributed generation, microgrids.
  - Grid Modernization: Technologies and strategies for upgrading and modernizing the electricity grid.

Day 3: Renewable Energy Integration

- Morning:
  - Integration of Renewable Energy Sources: Challenges and opportunities of integrating variable renewable energy sources (VRE) into the grid.
  - Energy Storage Technologies: Batteries, pumped hydro, compressed air energy storage (CAES).
  - Grid Stability and Control: Maintaining grid stability with high penetrations of VRE.

Course Outline

- Afternoon:
  - Case Studies: Examining successful and unsuccessful cases of renewable energy integration.

Day 4: Energy Markets and Policies

- Morning:
  - Electricity Markets: Structure of electricity markets, market participants, and market operations.
  - Energy Policy: Government policies and regulations related to energy production, transmission, and consumption.
  - Energy Economics: Economic analysis of energy systems, cost-benefit analysis, and market pricing.
- Afternoon:
  - The Role of Government in Energy: Policy instruments, regulatory frameworks, and international cooperation.

Day 5: The Future of the Energy System

- Morning:
  - The Energy Transition: Decarbonization of the energy sector, pathways to a sustainable energy future.
  - Emerging Technologies: Advanced nuclear, hydrogen, carbon capture and storage.
  - The Role of Innovation: Technological innovation and its impact on the future of the energy system.
- Afternoon:
  - Discussion and Conclusions: Group discussions, Q&A session, and summarizing key takeaways.

Registration & Payment

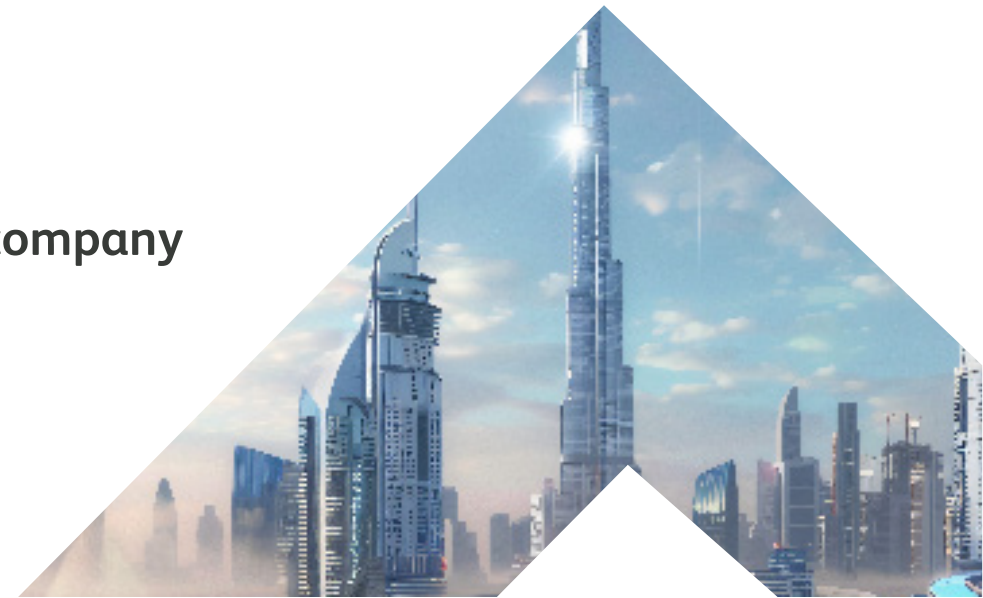
Complete & Mail to London Royal Academy or email registration@londonra.com

Registration Form

- Full Name (Mr / Ms / Dr / Eng) .....
- Position .....
- Telephone / Mobile .....
- Personal E-Mail .....
- Official E-Mail .....
- Company Name .....
- Address .....
- City / Country .....

Payment Options

- ☐ Please invoice me
- ☐ Please invoice my company



Terms & Conditions

Complete & Mail to London Royal Academy or email

registration@londonra.com

Cancellation and Refund Policy

Delegates have 14 days from the date of booking to cancel and receive a full refund or transfer to another date free of charge. If less than 14 days' notice is given, then we will be unable to refund or cancel the booking unless on medical grounds. For more details about the Cancellation and Refund policy, please visit
www.londonra.com/terms-and-conditions/

Registration & Payment

Please complete the registration form on the course page & return it to us indicating your preferred mode of payment. For further information, please get in touch with us

Course Materials

The course material, prepared by the LRA, will be digital and delivered to candidates by email

Certificates

Accredited Certificate of Completion will be issued to those who attend & successfully complete the programme.

Travel and Transport

We are committed to picking up and dropping off the participants from the airport to the hotel and back.

VENUES

- LONDON
- BARCELONA
- KUALA LUMPER
- AMSTERDAM
- ISTANBUL
- SINGAPORE
- PARIS
- DUBAI

OUR PARTNERS

THANK YOU

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